

GENERALIZED KANTOROVICH-SZÁSZ TYPE OPERATORS INVOLVING CHARLIER POLYNOMIALS

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1. ABSTRACT

The purpose of this paper is to introduce a new kind of Kantorovich-Szász type operators based on Charlier polynomials and study its various approximation properties. We establish some local direct theorems e.g. Voronovskaja type asymptotic theorem and an estimate of error by means of the Lipschitz type maximal function and the Peetre's K-functional. We discuss the weighted approximation properties and the approximation of functions with derivatives of bounded variation. Next, we construct a bivariate case of the above operators and study the degree of approximation with the aid of the complete and partial moduli of continuity. A Voronovskaja type asymptotic theorem and the order of convergence by considering the second order modulus of continuity are also proved. Lastly, we define the associated Generalized Boolean Sum (GBS) operators and discuss the degree of approximation by using mixed modulus of smoothness for Bögel continuous and Bögel differentiable functions.